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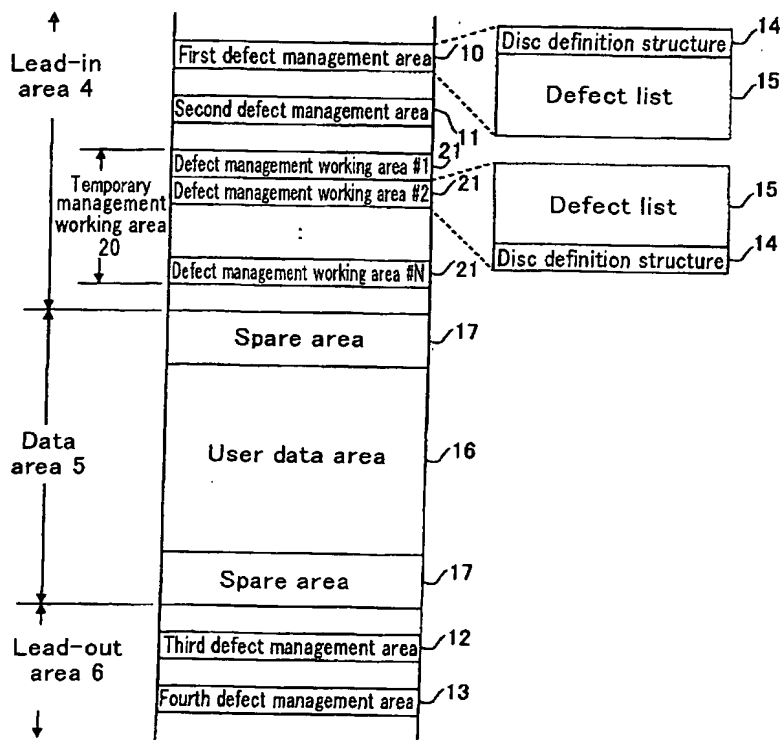
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[Continued on next page]

(54) Title: WRITE-ONCE READ-MANY INFORMATION RECORDING MEDIUM AND METHOD AND APPARATUS FOR INFORMATION RECORDING AND REPRODUCTION



(57) Abstract: A write-once read-many information recording medium is provided, which is capable of easily searching for a latest DDS (disc definition structure) (14) and a latest defect list (15). At least one disc management working area is sequentially allocated in a predetermined direction on the write-once read-many information recording medium of the present invention. The latest defect list and the latest DDS are provided in a recorded disc management working area neighboring a border between the recorded disc management working area and an unrecorded disc management working area (21), where the latest defect list precedes the latest DDS in the predetermined direction.

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INTERNATIONAL SEARCH REPORT

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IPC 7 G11B20/18 G11B20/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	<p>WO 2004/034396 A (SAMSUNG ELECTRONICS CO LTD) 22 April 2004 (2004-04-22)</p> <p>page 2, line 28 - page 3, line 4 page 3, line 22 - page 4, line 17 page 10, line 11 - line 28 page 12, line 3 - line 10 page 12, line 23 - page 14, line 6 page 14, line 23 - line 29 page 17, line 1 - line 25 page 18, line 13 - line 20 page 21, line 27 - line 29 figures 4a-4d</p> <p style="text-align: center;">----- -/-</p>	<p>1-4, 6, 7, 10, 16-19, 21, 23-26, 28-31, 33, 35-38</p>

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☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>ECMA: "ECMA 260 Data interchange on 356mm optical disk cartridges - WORM, using phase-change technology capacity: 14.8 and 25 Gbytes per cartridge"</p> <p>ECMA-INTERNATIONAL.ORG, 'Online! June 1997 (1997-06), pages 77-82, XP002289009</p> <p>Retrieved from the Internet: URL: http://www.ecma-international.org 'retrieved on 2004-07-13! the whole document</p>	1-39
A	<p>ECMA: "ECMA 238 Data interchange on 130mm optical disks of type WORM using irreversible effects - capacity 2,6 Gbytes per cartridge"</p> <p>ECMA-INTERNATIONAL.ORG, 'Online! June 1996 (1996-06), pages 54-61, XP002289010</p> <p>Retrieved from the Internet: URL: http://www.ecma-international.org 'retrieved on 2004-07-13! the whole document</p>	1-39
A	<p>US 2002/145966 A1 (MIYAMOTO HARUKAZU ET AL) 10 October 2002 (2002-10-10) figure 10</p>	1-39
P,A	<p>US 6 564 345 B1 (KANG KI-WON ET AL) 13 May 2003 (2003-05-13) figures 1,10 column 9, line 54 - column 10, line 4</p>	1-39

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report			Publication date	Patent family member(s)			Publication date
WO 2004034396	A	22-04-2004		WO	2004034396	A1	22-04-2004
				US	2004125717	A1	01-07-2004
US 2002145966	A1	10-10-2002		JP	2003006876	A	10-01-2003
				TW	509931	B	11-11-2002
US 6564345	B1	13-05-2003		CN	1479304	A	03-03-2004
				CN	1479301	A	03-03-2004
				CN	1227950	A	08-09-1999
				US	2003126527	A1	03-07-2003
				US	2003126528	A1	03-07-2003
				US	2003135800	A1	17-07-2003